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THE  
PSYCHOLOGICAL BULLETIN

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## GENERAL REVIEWS AND SUMMARIES

## PSYCHOLOGICAL PROGRESS IN 1910

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The presumption of psychological progress implies a recognizable independence of psychology as a science, either as to subject-matter or as to method. At least the purposes of historic record require some appreciable achievement in a field not appropriated by another discipline. It would seem, therefore, that there would be some working agreement upon the fundamental features of consciousness. The year just gone has shown quite the opposite picture. Some of us are still struggling at initial clearness as to what psychology is about.

Pikler gives a new expression to his views of the place of consciousness in the order of material phenomena (27). Without the advantages of the physical sciences, which lead us to resolve everything into outside physical forces, we could have no clue as to its nature and function. Neural opposition is the sole occasion for consciousness whose function is merely the production, in the most economical way, of adjustment between the organism and the external world. A dynamic psychology is thus possible because the analysis of physical facts becomes the analysis of mental facts. Yerkes' solicitation of opinion from a selected group of American biologists brought to light 'the sad truth that today psychology means very different things even to psychologists themselves' (40). "As compared with even the newest of the physical sciences, it appears crude, vague, inexact, unscientific," possibly because it "is a dismal mixture of physiology and psychology." Champions for consciousness as the creditable material for scientific treatment are, of course, not wanting. For example, Bolton (5) argues for the special efficacy of consciousness on the ground that it alone can meet the need of those individual

I

adjustments which are needed more quickly than they can be supplied by the more slowly acting instincts of the organism. And Judd reverses the whole setting of these uncertainties by arguing that "the concept of consciousness is most productively utilized in science when it is treated as a cause," inasmuch as by its present organization it determines the mode of future action (17).

Despite these possible opposite views of psychology, the work of gathering new material and furthering the interests of the science as an independent subject continues. In view of the leading tendency noted in our last survey, it is not surprising to meet with such a book as McCabe's (22). It presents the results of a synthesis of widely outstanding results from all the sciences into a view which shall let us see how, as far as possible, the complete development of consciousness has taken place. He undertakes 'the cosmic problem of mind' as it appears in terrestrial evolution. Can mind be brought within the reconstruction of the whole process of development? For answer the author ventures an examination of the recent work of geology, paleontology, biology and neurology. The work "does not purport to be a contribution to psychology, since psychology disavows interest in such an issue." Mind is looked upon as one of the culminations of the evolutionary series. It is a bold attempt to recover the traces left in its natural history. Consciousness seems to have made its appearance in the Tertiary period, beginning in the mammals and rapidly developing in the primates. While McCabe takes mind as literally present in the evolving series, Crawley (11) raises the question as to how the race has come into possession of its idea of the soul. The one book examines primitive human culture, the other the natural antecedents of all human activity. The answer to the question, Whence comes the idea of the soul? becomes indeed a kind of psychology of psychology. The now well-known theories that the idea of the soul had an animistic origin, or came from abnormal states, trances, or visions, or dreams, are rejected. They are replaced by a novel suggestion which turns to certain mental processes in the lowest stages of evolution. The hypothesis calls for the origin of the idea in the memory image, chiefly visual, as dissociated from the percept. Anthropology is made to supply the data used in the analysis and the argument.

In recent surveys we have had occasion to note the steady rise in the appreciation of the practical values of psychology. This phase has advanced so far that it must be said unhesitatingly to be the leading feature in the period under review. In his choice account of

the recent results in experimental psychology in the Clark University celebration address, Titchener (35) voices anew his belief in 'pure science' and declares against the possibility of any application of its results. "So far is experimental psychology from any general readiness to furnish ideas for application, that applied psychology has been obliged to think out ideas for itself; and so far is applied psychology from reliance upon the parent discipline, that some of its most widely used and most strongly emphasized ideas contravene established scientific principles." On the other hand, Binet (3), for example, recently announced in the *L'Année psychologique* the purpose of limiting and defining the field of this useful annual survey to those interests in psychology which are particularly practical, such as the measure of intelligence in children, and the problems which arise in pedagogy, law, pathology, and industrial organization. In an age saturated with the development of a pragmatic theory of life and reality as its final philosophy, it becomes a matter of serious doubt whether the one field of science which has been father to the movement can possibly stem this tide towards the practical and continue undisturbed in its devotion to its ideals of a pure science.

The most conspicuous contribution of the year, in the light of the foregoing drift in psychological affairs, is the possession of a working program of 'tests' which Whipple (39) has offered. During a period of nearly two decades the refinement of the experimental methods has consciously urged psychologists, individually and collectively, to seek some acceptable standards which should be true to the science and available as measurements of a given individual. Following the stream of suggestions, this manual makes a new move in the direction of elaborating 'a scientific system of mental tests.' In giving the history, the technique, and some of the results obtained by the application of each of the fifty-four tests selected, this book becomes an exceptionally advantageous survey of the entire field of this type of scientific work. The spirit of this undertaking is properly tentative. But its results ought to do much towards securing a standardization of tests, and advancing the interests of experimental pedagogy. From the material gathered by applying twelve tests upon the reaction, memory, apperception and attention processes of two groups of school boys, Burt (7) undertakes to answer definitely the questions of general intelligence. "Parental intelligence may be inherited, individual intelligence measured, and general intelligence analyzed; and they may be analyzed, measured and inherited to a degree which few psychologists have hitherto legitimately ventured to maintain."

In view of the limited space allotted to our retrospect in the reorganization of the BULLETIN, we must confine ourselves to mentioning some of the changes in the literature due to new works, revisions, and special summaries, and to noting a few contributions deserving of special mention. The completion of the sixth edition of Wundt's *Grundzüge der physiologischen Psychologie*, our greatest foreign classic, is a striking tribute to the change and expansion in the material now available in the science. A similar advance in experimental aspects is further attested by the appearance of the second part of Titchener's text-book (36). It is not a revision but a new book which Calkins (8) has given in her latest effort to expound 'self-psychology.' 'Idea' psychology is more or less eliminated, and experimental material is noticeably absent, while 'what appear to be the important results of so-called functional psychology' are incorporated. The pedagogical problems of the subject seem to share large responsibility for these last two books, while the growing importance of educational psychology is to be accredited with several other revisions. The appearance of the fifth edition of Sully's work (33) nearly a quarter of a century after its first writing (1886), although modified, gives one a good opportunity to see how much psychology has changed within the interval. In its old-time retention of introspection, its re-affirmation of the importance of mental analysis into the tripartite classification, and its refusal to accept the suggestiveness of the sensori-motor arc, this fifth edition would seem to come almost as a protest against progress. An instructive contrast appears when one compares Thorndike's contributions (34) now at hand in an important revision. In this field which he has made so largely his own, the methods of exact science are given application in approaching the problem of the natures of individual men. Münsterberg (24) has added his volume which seeks to trace certain closer connections between psychology and education. In the enlarged third edition of Eisler's dictionary (14), based on historical sources, the terms of psychology are given ample space.

The wide extension of the investigated fields of psychology and the rapid increase in material contributed by researches have long since made the résumé or summary of a restricted topic a useful contribution to the literature. Not infrequently a survey is made the basis for one's own ideas. Among those recently appearing mention might be made of the following. Arnold (2) has presented a novel accomplishment in his interesting effort to arrange and interpret the conclusions of various experimental investigations. An extended



résumé of modern work on memory is presented by Piéron (26), which begins with the permanent tendencies in inorganic matter and ends with memory in man. While it may be misleading to have us think of the physiological process in plants as 'memory,' it is helpful to have the suggestion that memory is a social, as well as a biological phenomenon. The problems of feeling have been restated by Ribot (30), in light of the general position that holds affective consciousness to be both analytically and genetically different from cognitive consciousness. In the posthumous work of Vaschide (37), it is not a little interesting to see that 'psychology' is the term selected to characterize the treatment of the varied material relating to the hand, which is regarded as the most important organ of movement. In his review of our knowledge of some aspects of fatigue, Offner (23) notes the limitations and unreliability of the objective methods of measuring the mental factors in fatigue which tend to overcome it and secure efficiency in effort. Yoakum (41) has also devoted an unusually large amount of space to an historical and critical survey of fatigue. Without the motive of stimulating research, Partridge (25) has assembled material and suggestions from psychology and anthropometry, in a form designed to simplify the practical study of individuals. One should note the list of several hundred English words (pp. 106-111) which are descriptive of the mental traits in which individuals differ. Although offering less technical material, Rowe (31) has presented a fuller statement of the psychology of habit than we have had hitherto, and hints at new lines for experimental inquiry. Binet (4) has prepared 'a balance sheet,' setting forth some of the results of studies on the sensory, intellectual and moral life of children. The first installment of Marie's (21) rather elaborate attempt to set forth the advance of psychopathology is to be credited to this year. While denying the mental unity of mankind and holding that social life is not the same as individual life, Lévy-Bruhl (20) examines some phases of primitive culture in search of the prelogical types of mental action. Davis (12) devotes attention to a critical examination of current social theories, and concludes that the social mind is only "a mass of common beliefs, sentiments, and determinations, possessed by the individuals of a group with the added consciousness that the other members simultaneously cherish them."

In the wealth of the remaining material, note can be made of only a few contributions. By her able handling of the origin, motives and contents of two hundred and sixty autobiographies, Burr (6) has turned a large bulk of literary interest over to psychology. The

'association lexicon' arranged by Kent and Rosanoff (18) on the basis of free association tests should prove useful in a field wider than that in which it originated. A particular enrichment of procedure and results has been made by Gamble (15) in applying the reconstruction method to memorizing scents, colors and nonsense syllables. By attempting to "determine the ways in which reasoning has grown out of the simpler mental operations," Pillsbury (28) adds to the psychological reconstruction of logic which has been in progress for some years. In continuing his contributions to the experimental study of action consciousness, Ach (1) shows that volition adds something in overcoming old habits of association and seems to arouse characteristic feelings which are proportional to the intensity of the will attitude. Dearborn (13) has usefully arranged his observations of the order of developments in one child. The increasing serviceableness of functional psychology has been strikingly shown by King (19), who contends that, by treating religious phenomena exactly as other facts of experience, it is possible to show how the appearance and development of the religious consciousness has followed the laws of all other mental attitudes. The literature of instinctive behavior has received a rare addition in portions of Wheeler's exhaustive monograph (38).

One may continue to turn to the *Psychological Index* (29) in the confident hope of finding an appreciably definite estimate of the tendencies which are operative in the literary output. By reference to the table below which presents a general comparison of the two preceding years one's attention is struck by two facts. In 1909 there is a decrease of over fifteen per cent. in the total number of references listed in the previous year. There is no possibility of determining whether this is an absolute decrease or whether this falling-off is entirely attributable to the "package of slips containing some of the titles collected by our German collaborators which was lost in the mail" (Compiler's Note). This loss does not, however, effect the relative ranking of the chief topics in the science employed by the *Index* for the purpose of classifying this rich and varied bibliographical material. The ranking order of these ten rubrics remains identical with the order that obtained in 1908. Inasmuch as a decrease occurs in each topic, one cannot refrain from asking: Do we here have an indication of the attainment of a temporary working balance among the dominant interests of psychology? There are considerations relative to the probable rates of scientific advancement which would lead one to regret such an attainment in any science.

A certain phase of the current welfare of the science in America is shown by the record of the doctors' degrees conferred by universities which is kept by *Science* (32). Psychology is one of the thirty-two subjects in which the three hundred and fifty-three degrees were conferred in 1910. Twenty degrees, a number greatly above the average for this science since 1898, were bestowed for dissertations on psychological subjects. Three-fourths of these were conferred by three universities, Clark (nine), Cornell (three), and Harvard (three). Psychology still ranks fourth among the sciences which lead university students to continue their studies to a satisfactory conclusion. This science, interestingly enough, also ranks as the seventh of the thirty-two subjects credited with the doctorate.

1908.		1909.	
No. of Titles.	Rubric.	No. of Titles.	Rubric.
782	Genetic, individual and social psychology.	739	Genetic, individual and social psychology.
646	Philosophical implications of psychology.	512	Philosophical implications of psychology.
616	Sleep, trance and pathology.	512	Sleep, trance and pathology.
461	Sensation.	358	Sensation.
337	General.	322	General.
290	Anatomy and physiology of the nervous system.	277	Anatomy and physiology of the nervous system.
189	Conation and movement.	128	Conation and movement.
132	Cognition.	122	Cognition.
49	Conditions and relations of consciousness.	69	Conditions and relations of consciousness.
30	Affection.	28	Affection.
3,532		3,067	

From one point of view this slight indication of the ability of psychology to maintain its scientific and educational position is partially confirmed by Cattell's recent report on the state of scientific efficiency in America (9). The three universities mentioned above as conferring most of the degrees are among the five universities (Chicago and Columbia being the others) in which psychology is a strong department, the degree of strength being measured by the presence of at least four of the eminent scientists of the one thousand. On the other hand, this unique study of the psychology of scientific performance reveals a rather discouraging state of affairs among us. Psychology stands only fourth from the bottom of the list of the twelve sciences which have the strongest departments in our universities, a situation hardly to be suspected from the relatively high ranking the work of the science has been holding as indicated above.

That psychology presents widely related as well as closely compacted problems is interestingly declared by some forms of associational interests that appeared during the year. The Boston (1909) meeting of the American Psychological Association was noteworthy for the special report on the methods of teaching the subject to normal school and college students.

One should not overlook the first congress of Polish Neurologists, Psychiatrists, and Psychologists, held in Warsaw, in October, 1909. While revealing some opposition to the laboratory procedure in the science, the program brought forth a commendable list of special psychological topics. On December 27, 1909, the International Committee on Educational Psychology (originally planned by Binet in 1905) assembled in Paris. On the same day there met the committee having in keeping the plans for the proposed International Congress of Paidology. In March, 1910, there was launched at Nüremberg an international organization, under the presidency of Jung, for promoting the interests of the Freudian psychoanalytical method in psychology. The same days during which the Experimental Psychologists' meeting was held at the Johns Hopkins University (April 19-21), the Fourth Congress for Experimental Psychology was being held at Innsbruck. Early in May the American Psychopathological Association, under the presidency of Prince, was formed in Washington, D. C. Late in June a joint meeting was held in London, including the Aristotelian Society, the British Psychological Society, and the Mind Association. Similarly, meetings of psychologists interested chiefly in the educational aspects of the subject were held in the spring in Iowa, in Minnesota, and in New York.

*The Journal of Educational Psychology* (16) made its appearance at the beginning of the year, and has set forth anew the central position the science may occupy by attracting a strikingly wide range of interests. It is to be a "clearing house for the exchange of information upon all that concerns the relation of psychology to education." The reorganization of special tasks to be undertaken by the *PSYCHOLOGICAL BULLETIN*, perfected within the year, is especially significant of the rare diversion and complexity which are now accredited to the activity in psychology. A series of psychological manuals for the general reader, under the editorial supervision of Jastrow, has been announced under the heading of the *Conduct and Mind Series*.

In the deaths of John A. Bergström, Borden Parker Bowne, Noah K. Davis and William James, of America, and Paul Mantegazza,



of Italy, this year has led us to appreciate anew the rich services which had been rendered by these laborers to the science in the fields of experimentation, its bearings upon philosophy and its reconstruction, and in its relation to anthropology. Our science has probably received as an indelible stamp the distinctive human impress made upon it by the labors of William James, who, in 1903, shared with Simon Newcomb the rare mark of standing first on the list of the one thousand leading men of science in America (10). By universalizing psychology, he so achieved the unusual in the history of intellectual attainment as to warrant one in believing that the future will regard him as the greatest psychologist of all time.

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## HISTORICAL CONTRIBUTIONS

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The contributions for the year range from the Platonists to the pragmatists. Cushman (1) presents a clear account of the psychology of Plato, Aristotle and the Stoics, but fails to show how the doctrine of representative perception in Democritus was modified in

the non-materialistic compromise of declination made by Lucretius. Werner (6) gives a well arranged and thorough textual study of Aristotelianism in relation to Platonism. Under the four heads—Reality, Mind, the Good, and God—are included such psychological topics as form and matter, soul and body, thought and desire, and the soul of the world. Of especial interest is the treatment of the Aristotelian metaphysics as an introduction to psychology; the splitting up of the dualism between spirit and reality by an appeal to the subconscious; the transfer of the grounds of a theory of pleasure from psychology to ethics and the distinction between practical and theoretical intellect. The work aims to mark the exact delimitation between the two writers and to prove that Aristotle was more inclusive than his idealistic master because of his return to the Ionian physicists.

For medieval psychology Wulf's volume (7) offers an able and cautious exposition. In the relation of soul and body thirteenth century scholasticism held to hylomorphism and the theory of the *spiritus physicus*, and while renouncing Plato and St. Augustine in its inquiries into the composite nature of the human being, agreed with them in establishing the spirituality of the soul. It was, however, regrettable that the leading scholastics were led astray by the distorted interpretation of the *species sensibilis* of Aristotle's commentators, for this supposed transformation of a material effect into an immaterial one uproots the very foundations of scholastic spiritualism. A similar false interpretation is in danger of being made by many modern historians who find a proclamation of the primacy of the theoretical reason in the Thomist theory and in the Scotist and Occamist theories an affirmation of the primacy of the will; Kant's primacy of one faculty over another is a formula which may not be transported without changing its meaning.

Wulf's interpretation of the old scholastic psychology is one thing, his defence of the new is another. The latter, he claims, "has found in the medieval teaching a most appropriate framework of broad leading principles for the interpretation of the latest facts in connection with unconscious mental states, with cerebral localization, with the proper and common sensibles, and especially with the objectivity of our muscular and tactual sensations." These claims may be large, but, as is shown by an interesting account of the text-books and teachings at the Belgian institute, the influence of the new scholasticism of Louvain is not small.

Coming to the 'father of modern psychology,' Kerstiens (2) attempts to meet the objections commonly raised as to Descartes'

ambiguities and inconsistencies. First, the soul is spiritual and not corporeal; though it fills the whole body, it is especially located in the pineal gland which, as a mathematical point, is considered to be without extension. The soul has two chief activities, thought and will, but this does not mean a separation of its substance, but the unity of a substance which is not the mere sum of several operations; hence this new view precludes any approach to psychophysical parallelism. As to free will and the concurrence of the duty, Descartes is not so successful in preserving the former apart from the domination of the latter. He hardly foresees the consequences of his doctrines as they issued in the occasionalism of Geulincx and the pantheism of Spinoza. But he elsewhere defends the autonomy of the will in his principle of the counterbalancing of emotion by cognition: "Nullam tam imbecillam esse animam, quae non possit, cum bene dirigitur, acquirere potestatem absolutam in passiones."

In reaction against Cartesianism, Poyer (3) describes Cabanis as opposed to Descartes' dualism and also striving for a science free from any relation to metaphysics. With him causality is nothing but an expression for order of succession, and general truths not absolute but the result of observation. Denying dualism Cabanis is nevertheless no more a materialist than a spiritualist; thus to him neutral states, like *cœnæsthesia*, belong equally to physiology and psychology. Further the first element of psychic life is not the pure idea, nor the image, but is *ideo-motor*. This was a new idea of the unconscious and of personality and transcended Leibniz' theory of the 'petites perceptions,' for there may be in each system a sort of partial ego and this central ego may be ignorant of the thoughts and volitions of the secondary ego. Cabanis here approaches the automatism of Pierre Janet and is a precursor of genetic psychology, since his studies of foetal life and the crises of puberty are made without reference to a finalistic interpretation. Finally his being a functional as against a structural psychology, he differs from the school of Condillac and approaches that of William James and Henri Bergson. In short, according to Poyer, Cabanis is anti-intellectual, positivistic and evolutionary.

The report upon Heymans (5) offers a brief but suggestive programme. According to the Dutch scholar the nineteenth century having been one of scientific method, of positivism, and the study of objective phenomena, has tended to ignore the subjective consciousness.

On one side is an enormous acquisition of scientific and technical



riches, on the other and opposed to the satisfaction of the material needs of man, there is a lack of spiritual satisfaction. The acquisition in exact knowledge is not counterbalanced in the knowledge of the individual. Man finds himself a problematic and strange personality; there is a complication in his intellectual life because he is stripped of his traditional ideas; especially has a loss of religious feeling led to moral depression. Hence arises the triple need of man to make peace with himself, his kind, and life in general. The question is therefore, can the psychology of the future offer the *vis mediatrix naturae*. For the improvement of ourselves and others three factors are important in the evolution of humanity—the succession of generations by death and birth, the selection of the better individual for the perpetuation of the species, and the inheritance of psychic qualities.

Against the charges that experimental psychology cannot hold its men; that its problems are not large enough to satisfy our intellectual demands, Titchener (4) contends that the past decade has shown the contrary. In this time psychology has leaned, very definitely, towards application, has been laid out and aligned with reference to practical and social questions. Take the three fundamental topics of sensation, affection and attention. In (1) sensation the most striking fact to record is the revival and extension of Fechnerian psychophysics and the revival of experimental interest in the organic sensations. (2) In affection we have transcended that pseudo-Darwinism which offers a facile teleology in place of scientific explanation. (3) In attention there has been the revival, with good promise of success, of the attempt to measure the attention, to give quantitative expression to distinguishable degrees of clearness. As to that mixed medley of formations which is included under the general term (4) perception, the Austrian school have made notable contributions but in the American biological interpretations there has been a tendency to substitute final for efficient causes, and general considerations for exact psychophysical determination. In the cognate subjects of (5) recognition, memory and association we may aim at a psychology, a psychophysics, or an applied psychology. Of these three the two latter aims have taken precedence, namely in tracing and measuring the action of the reproductive and perseverative tendencies, and in laying down rules for the training and the economical use of memory. In respect to (6) action, the technical or psychophysical aspect of the experiment has been overshadowed by the psychological, *i. e.*, the method of systematic ex-

perimental introspection. One cannot say as much for (7) imagination. Whether we begin with the elementary process, the image, or regard imagination as the general name for a group of typical formations, as a concept coördinate with memory, we must surely say that experimental psychology is to-day hardly over the threshold of the subject. Of the more complex (8) affective formations we can say but little until we have an assured psychology of feeling. But in regard to the problem of (9) thought, this is a single line of investigation that, more than any other, has characterized the decennium. Here is a new departure in experimental psychology; concept and judgment and inference, the last refuge of the rational psychologist, have been ranged alongside of sensation and association, introspectively analyzed and made subject to the chronoscope. Finally, as to further extensions of the experimental method, the psychology of the abnormal has failed somewhat of its theoretical promise, æsthetics has had a considerable body of results, while the rapid growth of an experimental psychology of the lower organisms has been manifest in the invasion of our laboratories by various unwonted forms of animal life.

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## GENERAL STANDPOINTS; MIND AND BODY

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Prominent among current discussions of the relation of psychology to the other sciences are certain attempts to deny its legitimacy or to minimize its scope. According to Duprat (6), psychology is in no wise essentially distinguished from the physical sciences; "we

are an integral part of a world in which there is nothing which is not extended," and the psychic fact is contrasted with the biological fact merely as being "perceptible through internal . . . not through external organs." Professor Alexander (1) does not go so far as this, but he limits psychology to the study of conation and feeling-processes on the ground that sensational content is identical with physical object.<sup>1</sup> On the basis of this conclusion, William Brown argues (4) that psychology is not, properly speaking, a science. It could become a science, he says, only 'by reduction' of the conative processes to the "common terms of space and time in which physics has found it possible to work, *i. e.*, by the measurement of external effects." For general, introspective psychology, Brown would therefore substitute nerve-physiology and *Begabungslehre*, the study of 'mental abilities' (for example of 'sensory discrimination in sight, learning, etc.,' and of 'memory for different classes of facts'), on the ground that these 'abilities' are 'measurable in terms of their effects.'

In opposition to views such as these, W. H. Winch (11) argues in some detail that the translation of psychic phenomena into 'terms of nerves, centers, and nervous paths' is a case of 'passing from what is known to what is guessed'; and that "present physiological and physical schemata are unduly simple." The claim of psychology to rank as independent science is well set forth also by two comparative psychologists: Lloyd Morgan (8) insists that "mental happenings . . . afford material for scientific study." Robert M. Yerkes (12) argues that we should "deal with psychological objects thoroughly . . . instead of devoting most of our time to premature attempts to correlate physiological and psychological phenomena." Yerkes bases his paper on the results of an inquiry addressed to twenty prominent biologists concerning their views of psychology. He distinguishes three types of doctrines; first, the conception of psychology as part of physiology; second, the conception of psychology as part of metaphysics; third, the conception of psychology as a science fundamentally distinguished from biology. The main aim of Yerkes is to establish this third conception and he argues it from the following considerations: The material of psychology is not 'essentially different' from that of the physical and biological sciences; rather, it examines 'the same objects,' but from the subjective not

<sup>1</sup>This statement is made on the authority of Professor Alexander's paper cited above (1). Through delay in the arrival of the last volume of the *Proceedings*, I have been prevented from reading his later paper, On Sensations and Images, *Proceedings of the Aristotelian Society*, 1909-10, 10, 1-35.

from the objective point of regard. The methods of psychology, also, are those of the sciences: it observes 'under natural and experimental conditions'; it 'strives for quantitatively accurate descriptions of its objects'; it presents, even if 'less satisfactorily' than the physical sciences, 'verifiable accounts of its objects.' Finally, Yerkes insists, psychology explains its phenomena causally, since "from the psychological point of view as well as from the physical, we observe a series of phenomena in which definite sequences are discoverable, and in terms of this apparently necessary arrangement of our objects we explain them." "In physics," Yerkes continues, "this uniform relation of phenomena is called physical causation; in psychics it is called psychical causation."<sup>2</sup>

It is evident that the attempt to relegate psychology to its proper place involves at least two problems—the question of the subject-matter of psychology and the question of the relation between psychical and physical, mind and body. For example, the conceptions of consciousness put forth by the late C. L. Herrick (7) and by H. H. Bawden (2, 3) inevitably subordinate psychology to biology and to physics. According to Herrick, "the various degrees or grades of consciousness are expressions of successively higher forms of the coördination of forces" (p. 28); and individuality is a 'self-centred or vector' activity. Professor Bawden defines consciousness as "simply the tensional activity or readjustment process which takes place in the universe at one point or another in what are called organisms wherever cosmic energies are brought into interaction in certain definite ways," and says that "a personality has the same sort of individuality that we find in a solenoid or a gyroscope." Such descriptions are, obviously, valueless to those who hold that 'force' and 'cosmic energy' and 'activity' are less immediately known than consciousness.

More important to psychology than these semi-metaphysical attempts to define consciousness in terms of the physical are the teachings, about the relation of mental to physical, of those who admit psychology as independent science. For however heartily one agree with Yerkes that "it is more important for science to advance our knowledge of bodily and mental processes than to speculate concerning their relations," and however emphatically one deprecate the title *Mechanik des Geisteslebens* for Verworn's brilliant lectures on the physiological conditions of consciousness (10) it is still obvious

<sup>2</sup>Cf. G. M. Stratton, *Toward the Correction of some Rival Methods in Psychology*, *PSYCHOL. REV.*, 1909, 16, 73 and 74; and M. W. Calkins, cited below (5).



that the psychologist cannot rightly ignore the apparently close relation of psychic to biological phenomena. In the first chapter of *A Text-book of Psychology* Titchener (9) adopts what is virtually the monistic and Spinozistic point of view of Ebbinghaus's *Grundzüge*. He asserts (*op. cit.*, p. 2) "that all the sciences . . . deal with some plane or aspect of human experience"; and then he distinguishes (pp. 6 ff.) the material of physics, "as altogether independent of any particular person," from that of psychology which is "altogether dependent upon the . . . experiencing person," which, indeed, "goes on only when some one is there to have it." Physical and psychical facts, thus defined, are, he teaches, two 'parallel aspects of the same world of experience.' It is important to notice the difficulty inherent in this conception as Titchener carries it out. As has appeared, the distinction between 'physical' and 'psychical' has been made by the assumption of an 'experiencing person.' To the obvious question: what is this 'person,' 'some one,' or 'I,' with reference to whom the psychical is distinguished from the physical, Titchener's reply, a few pages further on (pp. 10, 16), reads: "the phrase 'experiencing person' means the living body." But the 'living body' is a physical object, and therefore this identification of 'person' with 'living organism' really reduces the psychical to the physical, destroys the parallelism, and conceives mental phenomena as 'dependent' aspects of bodily processes.

In the paper already cited Morgan takes a radically different view. "Physiological events," he holds (p. 5), "form part of the same continuous train" as "mental happenings." Their relation is that of antecedent and consequent. There are "no scientific grounds for arguing that brain process is the antecedent . . . (and therefore the cause) of mind process, or *vice versa*." In a word, both interaction and parallelism are unnecessary and make metaphysical implications.<sup>1</sup> The 'subject-matter' of the field of psychology is thus 'of a wholly different order' from that of the physical sciences; but it can only "be unified and rendered consistent for scientific interpretation by introducing connecting links which lie outside."

It is interesting to observe the compatibility of psychological dualism, as working hypothesis, with any philosophic theory. The view of Morgan (a realistic monist in philosophy) is also the standpoint adopted by the writer of this notice (a personalistic monist

<sup>1</sup>This statement must be construed as applying only to the form of interaction which treats consciousness as metaphysical cause. Morgan's own view supposes interaction in the sense of mutual relation.

in philosophy) in *A First Book in Psychology* (5). This book is based on the conception of consciousness, as a relation of self to objects<sup>1</sup> (distinguished as personal or impersonal, public or private, external or 'internal'). For purposes of classification and explanation, psychical phenomena are conceived also—by the psychologist not by the experiencer—as related or linked with regularly preceding, accompanying and following nerve-excitations and bodily reactions.

This brings us to the problem of the subject-matter of psychology viewed as independent science—in a word, to the problem of the nature of consciousness more narrowly regarded. Titchener writes, as usual, from the standpoint of the so-called structural psychology—better named, 'atomistic' or 'idea' psychology, since analysis is a method common to all serious forms of psychology. This view of consciousness or mind, as sum total of mental processes, or series of mental happenings, is held by Morgan also, who argues in explicit opposition to the conception of consciousness as self. According to Morgan the self, or 'conscious ego,' is an 'active agent or producing cause' and, as such, an object (in his view, a justified object) of metaphysics. Morgan speaks, to be sure, of the 'experiencer'—for example, in his descriptions of 'the water-hen as actual and potential experiencer.' He does not, however, follow Titchener in identifying the experiencer with the organism. (It is better, he says (p. 15), to say 'the organism has psychophysical dispositions' than to say that the 'organism has impressions.') And he asserts (p. 14) that "to know that one has an impression implies a thinker or experiencer." But, curiously enough, to avoid what he calls the metaphysical conception of the self as experiencer, Morgan has recourse to the metaphysics of the associationists, concerning "the perceptual subject" as "the revived experience which assimilates or possesses the new impression."

The writer of this notice regards psychology after a radically different fashion, as science of the conscious self in relation to its environment. This self, it is contended, is not the ultimately real self, the 'determining agency' of the metaphysicians but a self immediately realized as constituting every conscious experience however elemental. The book already cited (5) attempts to lay stress indirectly or directly on the following considerations which favor this view: (1) All experiences are incompletely described, and certain experiences—

<sup>1</sup>The core of truth in Professor Alexander's discussion is the recognition of the psychologist's object. The main objection to his teaching is that he does not carry the dualism far enough.

recognition and emotion, for example—are very inadequately described without reference to a persistent and unique self. (2) This 'self-psychology' includes a complete structural analysis—that is, it is as easy to treat the experiences of a self as sensational, affective, etc., as it is to analyze a mental process into sensations, affections and the like.<sup>1</sup> (3) All psychologists, however opposed in theory to the recognition of a self, none the less implicitly treat psychology as science of the self, or experienter.

The clearest result of the reading of these divergent discussions is, thus, the fear that we are yet far off from the day when, in the words of Yerkes "a certain group of presuppositions" shall have been "definitely and heartily accepted by the great mass of . . . workers" in psychology.

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<sup>1</sup>For the brief expression of an opposite view, cf. the exclamation of Duprat, cited above: "le 'je' est vide de contenu."

## TERMINOLOGY

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Claparède (1) reported to the last International Congress of Psychology a plan for the revision of psychological terminology. In his opinion the desiderata include the compilation, determination, and authorization of convenient terms now in use; choice among rival terms or rival meanings which attach to the same term; the determination or coining in each language of equivalents to terms recognized in others; coining of new terms to designate new things, or where existing terms are unsatisfactory; and the creation of time-saving international symbols for the most common terms. The author advocates the following principles: (1) Words relating to the same thing should so far as possible be identical in all languages; the use of Latin and Greek roots is recommended. (2) Terms established in one language should be translated literally into the others. (3) Preference should be given to words already in use over neologisms. (4) Each object or concept should be given an individual, appropriate name. (5) In coining new terms rules already applied in analogous cases should be followed. (6) For experimental technique and phenomena peculiar to psychology, special and characteristic terms should be adopted rather than ill-defined, popular terms. (7) The reform should begin with terms relating to methods, technical procedure, etc., rather than those which imply some hypothesis or doctrine.

Claparède makes several pertinent recommendations—e. g., French names for the psychophysical methods; E.S. and E.T. for 'space error' and 'time error' in all languages; P for subject (patient) and A for experimenter (assistant); N and V for normal and variable (or comparative) stimulus.

The same author (1) reports the propositions presented to the Congress by Baldwin. Although devised independently, the two agree substantially. Baldwin proposed, furthermore, that technical terms having a recognized meaning in one language should not be used in another language with a different meaning; nor should they be employed in their own language with other meanings unless accompanied by some determining word. The Congress voted that new words should be so constructed that they may be carried over with slight change into all the principal languages. A commission of four was appointed to present a definite scheme to the next Congress.



Titchener (4), while offering no striking innovations in terminology, is unusually exact and thorough in his definition and demarcation of terms. The relations between perception (364), idea (376), meaning (367), apperception (366), memory image (416), and image of imagination (416) are brought out. Sentiment is differentiated from emotion (499). 'Conscious attitude' is treated exhaustively (505-521). The author finds no compelling reason for the retention of the terms apperception (366), perseveration or perseverative tendency (401), and conation (468).

Of interest to genetic and social psychologists is Rosenthal's discussion (2) of the relation between 'tendencies of development' and 'laws' in social phenomena.

In ethics Sissons (3) proposes the term 'catholism' (adj. 'catholicistic') in place of 'utilitarianism' and 'universalism,' to denote the balance between egotistic and altruistic impulses.

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## TESTS

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The greater part of the publications upon tests during the past year has been related to the Binet-Simon 'Measuring Scale of Intelligence.'<sup>1</sup> The article by Huey (7) gives a partial translation of the Binet-Simon tests and of the directions for using them, and urges that they be standardized with normal American children so that they may be used intelligently in grading abnormal children.

The standardization of these tests by applying them to normal children has been attempted by Decroly and Degand (5). These investigators applied the tests to 45 children of a day school extending in age from 2 yrs., 7 mo. to 12 yrs., 8 mo. There were 37 between the ages of 4 and 9 inclusive. The authors publish the results with

<sup>1</sup>Binet et Simon. *Année Psychol.*, 1908.

each child in some detail so that it is possible to arrive at some results which they do not themselves state. It appears that on the basis of the tests, using Binet's method of determination, only 2 of the pupils were retarded and these each 1 year while 5 tested normal and 38 were advanced. The advancement ranged from  $\frac{1}{2}$  yr. to 4 yrs. and amounted in all to  $69\frac{1}{2}$  yrs. In brief, assuming that the tests were made according to Binet's directions, either the tests are on the whole too easy or the children tested by Decroly and Degand are more mature for their age than those which Binet used in constructing the tests. The authors themselves make some criticisms of certain of the tests. They conclude that 12 of them are too easy and 3 too hard. They criticize 4 tests because they involve mechanical processes rather than intelligence, and 4 others because they depend too much upon the social *milieu* of the child. Others again, to the number of 7, indicate merely erudition. They would suggest changes, then, in 30 out of the 65 tests. Finally they suggest that the tests for immediate memory be more finely subdivided so as to furnish one for each age from 7 to 12 yrs.

The Binet-Simon tests were further tried out, though not very accurately, by Miss Johnston (8). She tested 200 school girls of Sheffield, England, most of whom were aged 7 to 13 inclusive. Of these 140 could not meet the Binet test for their age. Most of these however—the author does not say how many—could pass enough tests of their own age and beyond to bring their standing up to normal according to Binet's corrective formula. There were 26 who could meet the tests beyond their age. Considering those who were advanced more than one year we have a total of 39 years advancement. The interpretation of these results is doubtful, but they are not in accord with those of Decroly and Degand.

Goddard (6) grouped the 400 children of the New Jersey Training School on the basis of the Binet-Simon tests and then tested the grouping on the basis of certain other criteria. He first assembled the executive heads and teachers of the institution, read the names of the children belonging to each group to them and asked them if any children were in their judgment misplaced. Though certain preliminary objections were expressed they were in each case overruled and there was finally unanimous agreement that the children were correctly placed. The order of grouping was also compared with the results from tests with the form board, ergograph, ataxiagraph, etc., and with the accounts of the attendants, teachers and officers of the general ability of the children to perform actions of

various sorts—work, play, etc. It was found in each case that the grading by the Binet tests agreed with that reached by the other means.

Lipmann (9) has made a comparison of the distribution of ability about the normal made on the basis of Binet's tests with three independently constructed curves of distribution, viz., the theoretical curve of Francis Galton and the curves determined on the basis of experimental tests by McDougall and Bobertag. (Unfortunately the author does not give the sources of his data.) The author has drawn the four curves in one figure which supports his statement that there is a striking similarity.

Experiments with a newly devised test are reported by Ries (12) The object of the test is to measure the ability to establish a logical relation (cause and effect) between two concepts. The assumption is that this ability will show a high correlation with general intelligence. The method is to determine the degree to which the associative memory of pairs of words between which a relation of cause and effect exists differs in different children and to grade them on the basis of their efficiency of recall of the second word of the pairs when given the first one. That this is not a test mainly of mechanical memory was shown by a check experiment with nonsense syllables. The correlation between the two kinds of recall was only .40, with p.e. .21. The correlation of the standing in the new test with class standing was worked out for five classes of pupils ranging in age from 11 to 14. The coefficients for the five classes were .59, .85, .89, .86 and .90. A variation of the method consisted in giving the pupils a series of substantives and requiring them to find words which express the effect of that which the first word denotes. Excellence in this test gave still higher correlation with class standing. The Ebbinghaus Completion Test gave in general a lower correlation than the tests devised by the author.

Binet (1) contributes a report of experiments on the correlation between intelligence as indicated by school standing and certain physical characteristics. He chose for examination the size of the head, the stigmata of degeneracy, physiognomy and the form and appearance of the hand. The characteristics in question he does not find to be suitable subjects for tests, but the first two may in certain cases furnish confirmatory evidence.

Meumann (10), in a critical article, analyzes the different forms of mental tests and gives suggestions as to the forms which are most reliable. In view of the fact that we have but little knowledge of the correlation between particular mental processes and general intelligence the author holds that the examination of general intel-

ligence should be made by means of a series of tests varied in character rather than of single tests. On the other hand the determination of the degree of 'higher intelligence,' or intelligence in the narrow sense, may be made by means of tests specially adapted to this end. These would include tests of the ability to make abstractions, to keep in mind a goal of thought, to command readily and in ample number ideas appropriate to this goal, etc.

Paton (11) describes the method of selecting 25 boys from a school of 250 for the award of scholarships. The method consists in a written report of a passage read just previously, and in a personal, individual interview with each boy.

Brown (3 and 4), describes a method of correlating excellence in different subjects on the basis, not of the standing in the subject as a whole, but in certain parts of the subject, each of which involves chiefly some one mental process. The author has applied this method to the work of 50 boys in arithmetic, algebra and geometry and reaches what he regards as evidence of the value of the method.

For reviews of Burt (2) and Whipple (13), see the October number of the *PSYCHOLOGICAL BULLETIN*.

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## SPECIAL REVIEWS

### TITCHENER'S PSYCHOLOGY

*A Text-book of Psychology.* EDWARD BRADFORD TITCHENER. New York: The Macmillan Co., 1910. Pp. xx+565. Price \$2.00 net.

This new work by the dean of American empirical psychology, written to take the place of his earlier *Outline of Psychology*, is a systematic treatise which is perhaps most closely comparable, by reason of its clearness, its maturity of judgment and the candor and conviction of its statement, with the unfinished *Grundzüge* of the late Professor Ebbinghaus. It shows the same respect for empirical findings as does the excellent text-book of Professor Myers, but a broader and more unifying grasp thereof than does that volume. Professor Titchener's work presents the field of psychology apprehended as a whole by a mind which surveys with apparent ease the parts and the whole together, and surveys these with a considerable originality of vision. Such a work will stimulate both to assent and to dissent, but it is sure to stimulate and to instruct.

To consider, firstly, the use of this volume in the class-room—and it is 'written expressly for the class-room'—it should seem to be a perfectly feasible text for beginners since the elementary facts are there and are clearly and simply stated. But it contains very much that would be wasted on beginners, and that on the other hand more advanced students ought decidedly not to miss. So that, although the items and discussions of a more advanced quality are presented in smaller type and can be omitted with a class of beginners, the volume should seem best adapted to a second course in psychology. Furthermore Professor Titchener presupposes an already awakened interest on the part of the student and makes small concessions to the art of allurements; as is scientifically impeccable, of course, but with an elementary class is pedagogically rather inexpedient, at least in America.

The contents are arranged under these main headings—Sensation (with nine subdivisions), Affection, Attention, Perception (with five subdivisions), Association, Memory and Imagination, Action, Emotion, Thought. Into the general matter and structure of these sections we need not enter, since they are in good part predetermined for any author; while the treatment of certain particular points is here of more vital interest. Firstly, Professor Titchener rejects the

notion of an unconscious (or a co-conscious) mind: although "reference to the body does not add one iota to the data of psychology," yet it "does furnish us with an explanatory principle for psychology; it does enable us to systematise our introspective data. Indeed, if we refuse to explain mind by body,—we must either rest content with a simple description of mental experience, or must invent an unconscious mind to give coherence and continuity to the conscious" (page 40). The unconscious belongs to 'the sphere of fiction.' This principle is consistently adhered to, so that even the 'meaning' of our perceptions, which is ordinarily the imaginal context, the images associated with perceptions, 'may be carried in purely physiological terms'; it has, 'time and time again, no discoverable representation in consciousness' (369). There is, then, nervous action unaccompanied by mental process notwithstanding that mind and body "are not separate and independent things" and "any change that occurs in the one will be accompanied by a corresponding change in the other" (13). Some further explication is here needed to reconcile this statement with the view that mental processes correspond to only certain events within the nervous system and that the gaps in the former series can be explained by reference to the causal continuity of the latter (40). Clearly, however, Professor Titchener would not resort to dissociated or co-conscious mental processes, as is more or less explicitly done by the psychoanalytic school.

Both space and time are made (quantitative) attributes of sensation. The "elementary character of outspread or expanse is the foundation upon which all the forms of spatial consciousness, delicate and refined as they are, have been built up" (303). "The attribute of duration is, in the author's view, primitive and ultimate, like that of spatial extent; it corresponds, in consciousness, to the rise, poise and fall of the excitatory nervous process" (340). Concerning the genetic theory of space-perception by means of sensations of movement, the author says: "To say that space results from the fusion of quality and intensity [of a kinæsthetic sensation], however plausibly the statement be made, is to leave us with a mystery; nowhere else, over the whole range of psychology, does the concurrence of attributes give rise to an absolutely new form of consciousness," *i. e.*, the spatial (338). In short the idea of extent cannot be formed out of merely intensive entities. But this nativism, if so it is to be termed, is adopted along with its consequences—a concession to fact that is all but unprecedented in the annals of psychology—for "if the idea is the idea of a circle seen in the mind's eye, it is round; and if it is the

visual idea of a square, it is square" (17). Nevertheless Professor Titchener does not deny that kinæsthetic sensations play an important part in the perception of space; and they can do this because "the articular sensations are themselves spatial in character" (307). This last point is not given quite enough emphasis, and unless the student gets it he will find it hard to reconcile the above-quoted criticism of the sensation-of-movement theory with such sentences as this, regarding binocular depth: "it seems probable that absolute localization is effected by way of muscular sensations, the sensations aroused by movements of accommodation and convergence" (313); as also with passages on pages 307, 308, and 314. Indeed the reviewer is puzzled to see why, if the author's theory is correct, "the sensations [last mentioned above] are not always discoverable by introspection; the perception of distance may come to consciousness directly" (314). Is it meant that the spatial attribute alone, of the sensations of accommodation and convergence, comes to consciousness?

The interesting topic of sensory blends is considered under 'Qualitative Perception.' It is characteristic of these experiences that the component qualities blend "so that the perception appears simple, or at least unitary"; but also "that the perception may be analysed, under rigorous scrutiny, into a number of elementary processes." The "blending may be so complete as to give us the illusion of qualitative simplicity. But the other fact, that systematic observation always reveals the complexity of the perception, is of no less importance" (349). "The classical instance of the qualitative perception is the tonal fusion" (351). Such blends occur between visceral and dermal sensations: indeed, "the skin may steal from the viscera as taste steals from smell" (184). But the author does not admit (with, for instance, Brentano) that color qualities are such complex perceptions; for, "all colours are equally simple; it is impossible, for instance, by introspective analysis to split up orange into yellow and red" (85, also 61). Yet, as above, qualitative simplicity may be an illusion; and on the other hand many observers, both untrained and trained, report themselves able to analyze introspectively several of the color qualities.

The treatment of affection and attention is substantially like that given in Professor Titchener's *Lectures on the Elementary Psychology of Feeling and Attention*. One addition may be noted. It will be remembered that in the previous volume affections were found to lack the attribute of clearness, so that they were only with difficulty, if at all, amenable to attentive study. It is now found "not necessary

to affective introspection that attention be directed upon the affection. Recent work has shown that, if attention is directed upon the stimulus, the situation, an affective judgment comes directly, of itself the quality and intensity of the affection touch off the corresponding expression or report. Nothing more is required than that the observers shall be fittingly instructed, affectively predisposed. When the predisposition to express the feelings has been set up, it is this that is actualised by the presentation of the stimulus, and that dictates the introspective report. The observer has no impulse to describe the situation in sensory terms, focal as these terms were" (472-473). This may suggest to some psychologists the doubt, whether such predisposition does not after all render the affection focal, that is, bring to it the attribute of clearness.

In the chapter on Emotion Professor Titchener deplores the fact that "we have no systematic description of emotion, taken under standard conditions. In other words, we have no first-hand analytical psychology of emotion; and it is this lack that makes the chapter on emotion in the text-books the dreary reading that it is" (472). "The reason, . . . that our descriptive psychology of emotion is schematic rather than analytical is, simply, that experimental psychology has so far found neither the time nor the courage to take emotion into the laboratory" (473). The James-Lange theory is reviewed, and the conclusion reached "that the sensations of the organic reaction cannot be identified with the emotion. They are, it is true, an integral part of the typical emotive consciousness,—but only because the emotion is, essentially, an affective response to a situation which appeals to the organism's instinctive tendencies" (483). "A group of organic sensations is, after all, a group of organic sensations" (482). "And if an emotion has previously run its complete course, inclusive of the organic sensations, then the inhibition or deferment of the organic reaction, later on, does not of necessity destroy the emotion; the primary feeling, the affectively toned situation, may now, in its turn, mean or stand for the complete emotion" (483). But would this be the case if the emotion had not previously "run its complete course, inclusive of the organic sensations"? The late Professor James believed not; but granted that after the organic sensations had once become associated together, after being reflexly aroused together by a given environmental situation, a recurrence of the situation might arouse a memory of these associated organic sensations without actually exciting them reflexly. Also in the above quotation it should be noted that the case of something 'standing



for' a complete emotion is not the case of there being a complete emotion. However, Professor Titchener admits that the organic sensations are 'an integral part of the typical emotive consciousness,' and Professor James himself indicated a further aspect of emotions: "The man is really hateful; the action really mean; the situation really tragic—all in themselves and quite apart from our opinion" (*The Place of Affectional Facts in a World of Pure Experience*). The emotion is partly comprised, then, in the structure of the situation itself. Professor Titchener gives some interesting introspective analyses of emotions, affective transfers and illusions: and mentions in passing, the 'law of dynamogenesis.' "Still it remains doubtful whether every excitation that corresponds to sensation or image tends to a motor conclusion." The view, "that the nervous system is a system of conduction, a sort of glorified telephone exchange, is in the author's opinion wholly inadequate to explain the phenomena of mind. The theory of conduction, with obstacles or easements between cell and cell, must, he believes, be replaced by a theory of intracellular change, of change within the cell-body; and if this is the case the cortex may be regarded rather as disjunction of the reflex arc than as a switchboard for the manifold connection of afferent with efferent process" (489).

Perhaps no portions of this volume are written with more care and penetration than the chapters on Action and Thought. Both chapters deal essentially with the range of phenomena that has come to be known as the 'thought-process,' and both contain a remarkable wealth of concrete introspective analysis; and the treatment is very different from that found in the same author's *Lectures on the Experimental Psychology of the Thought-Processes*. The most important element in 'action' is the 'determining tendency,' with its complicated relations to consciousness. Voluntary action is 'selective action' or action subject to more than one determining tendency; it results "from a conflict of impulses, just as secondary attention results from a conflict of primary attentions" (459), and these several determining tendencies (in marked contrast with the Lotzian view) may or may not be present in consciousness. "Determinations may be carried in very fragmentary terms, and a wide range of reflective consideration may be packed into a conscious attitude" (460). The following definition is well worth noting: "A suggestion is any stimulus, external or internal, accompanied or unaccompanied by consciousness, which touches off a determining tendency" (450). In Thought the author attacks the imageless thought-element and the imageless

relation-element, but he makes room for a 'conscious attitude' that is more or less analyzable into imagery. The following passage will be taken by some persons as a concession to Bühler, by others as an explanation of how Bühler and those who share his opinions in this matter have come to make their mistake: "It is, then, conceivable that the imageless relations of the text [there considered] mark a half-way stage between kinæsthetic set and unconsciousness; that, in certain individuals, a faint glow of consciousness still plays about excitatory processes which, in other individuals, are altogether unconscious. It is more probable that a systematically controlled introspection will, in all cases of consciousness, reveal the imaginal character of the feeling of relation" (514). Attitude is generally analyzable into imagery of one sort or another, but it appears "that certain images are constitutive of the attitude, and that certain other images are secondary and irrelevant" (519). To the reviewer there seems to be an ambiguity as to the relative importance, for the attitude, of imagery and of determining tendency. It is hard to see how a determining tendency can be any kind of conscious image, or how any image can have the dynamic potency of a determining tendency. These two chapters, furthermore, in common with the literature of the thought-process in general, reveal in the reviewer's opinion a fundamental error;—the report of *introspective* consciousness, of consciousness complicated by the additional processes of reflection, that is of recall, analysis and description at the very least, is everywhere mistaken for consciousness. Whereas the consciousness that is not so complicated, which is not introspected on or which is not amenable to introspection, is what others have called the unconscious or the co-conscious; and in the literature of the thought-process it is denied to be anything but neural process. This confusion is the source of the 'imageless thought' controversy; of the paradox that mere neural process can at some times accomplish satisfactorily what at other times requires the accompaniment of consciousness; of the predicament which requires us to discover just what change in the nature or locality of neural process causes it to be accompanied by consciousness; and of a host of other bafflements.

But this review has exceeded its limits, and has still barely touched on the numerous important issues that are raised by Professor Titchener's latest work. It is a volume of the first importance, and one which will instruct and stimulate the teacher no less than it will safely guide the student and the lay reader.

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## APPARATUS

*A New Key for Reaction-Time Work.* K. DUNLAP. PSYCHOLOGICAL MONOGRAPHS, 10, 1909, 26-37.

This compound key is designed to eliminate errors due to breaking of the current by the finger resting on the key. Experimental proof is furnished showing that this key shortens reaction-time presumably by favoring the withdrawal of attention from touch of the key. Full directions for construction are given.

*An Apparatus for the Study of Kinæsthetic Space Perception.* J. H. LEUBA. Amer. J. of Psychol., 1909, 20, 371-373.

This is an elaborate piece of apparatus for control and measuring of the arc movements of arm and leg in either active or passive movement with convenient means for measuring the amplitude and extent of the movement.

*Tuning Forks for Tests of Pitch Discrimination.* E. B. TITCHENER and G. M. WHIPPLE. Amer. J. of Psychol., 1909, 20, 279-281.

A full criticism of the principles involved in this apparatus is found in the report of the committee on the standardization of the tests of pitch discrimination, which appears in No. 53 (December, 1910) of the PSYCHOLOGICAL MONOGRAPHS.

*A Demonstration Color-Pyramid.* E. B. TITCHENER. Amer. J. of Psychol., 1909, 20, 15-21.

This article contains directions for the making of the demonstrational color-pyramid. In making one it is worth while to consider with this the suggestions 'on the form of the color-pyramid' by Howard C. Warren, PSYCHOL. BULL., 7, 51-52.

*Ein Tachistoscope fur Reizserien.* W. WIRTH. Psychol. Stud. (Wundt), 1909, 5, 268-278.

This is a well-built shutter controlled by an electro-magnet and coil springs for short exposure. It is a very serviceable piece of apparatus but does not give that freedom from noise which is obtained in the use of the Dodge tachistoscope with revolving disk. A simpler shutter with a straight spring is also described.

With increase in specialization of scientific work in psychology it is more and more important that permanent pieces of apparatus should be described in a separate article and not merely as an incident in a piece of research. It is, also, desirable that psychologists should report from time to time improvements and standardization tests of

apparatus which may be of general interest to the directors of laboratories. It is hoped that the section in this bulletin which is now set aside for the review of apparatus may contain in the future very much more extensive and critical accounts of the annual out-put of apparatus. For this reason it is desirable that notices, preferably reprints of articles on apparatus, should be sent to the editor.

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### NOTES AND NEWS

At the recent meeting of the American Psychological Association at Minneapolis, Minn., Professor C. E. Seashore (Iowa) was elected president for the coming year. Professor W. V. D. Bingham (Dartmouth) was elected secretary-treasurer.

The American Philosophical Association has elected Professor F. J. E. Woodbridge (Columbia) president and Professor W. T. Marvin (Rutgers) vice-president. Professor E. G. Spaulding continues as secretary.

The Southern Society for Philosophy and Psychology has elected the following officers for the year 1911: *President*, Dr. Shepherd Ivory Franz (Government Hospital for the Insane); *vice-president*, Professor A. Caswell Ellis (Texas). Professor R. M. Ogden continues as secretary.

Professor John Dewey, of Columbia University, is giving a course of six lectures at Smith College on 'The Psychology and Ethics of the Self.'

Professor James R. Angell, of the University of Chicago, will give a course of eight lectures at Union College in January and February on 'Modern Psychology.' These lectures are given on the Ichabod Spencer Foundation which, with an endowment of \$75,000 for the department of philosophy, was recently made by Mrs. Catherine Leavitt, of Washington, in memory of her father.



